



Heat exposure and socio-economic vulnerability as synergistic factors in heat-wave-related mortality

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Year: 2009
Journal: European Journal of Epidemiology. 24 (9): 495-502

Abstract:

Heat waves may become a serious threat to the health and safety of people who currently live in temperate climates. It was therefore of interest to investigate whether more deprived populations are more vulnerable to heat waves. In order to address the question on a fine geographical scale, the spatial heterogeneity of the excess mortality in France associated with the European heat wave of August 2003 was analysed. A deprivation index and a heat exposure index were used jointly to describe the heterogeneity on the Canton scale (3,706 spatial units). During the heat wave period, the heat exposure index explained 68% of the extra-Poisson spatial variability of the heat wave mortality ratios. The heat exposure index was greater in the most urbanized areas. For the three upper quintiles of heat exposure in the densely populated Paris area, excess mortality rates were twofold higher in the most deprived Cantons (about 20 excess deaths/100,000 people/day) than in the least deprived Cantons (about 10 excess deaths/100,000 people/day). No such interaction was observed for the rest of France, which was less exposed to heat and less heterogeneous in terms of deprivation. Although a marked increase in mortality was associated with heat wave exposure for all degrees of deprivation, deprivation appears to be a vulnerability factor with respect to heat-wave-associated mortality.

Source: <http://dx.doi.org/10.1007/s10654-009-9374-3>

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Temperature

Air Pollution: Ozone

Temperature: Extreme Heat, Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Rural, Urban

Geographic Location:

resource focuses on specific location

Climate Change and Human Health Literature Portal

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : France

Health Impact: ☐

specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat related mortality

Population of Concern: A focus of content

Population of Concern: ☐

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type: ☐

format or standard characteristic of resource

Research Article

Timescale: ☐

time period studied

Time Scale Unspecified